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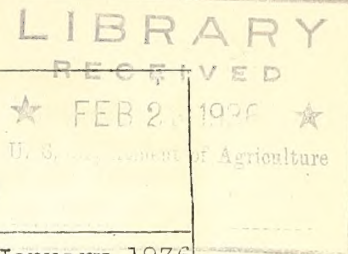
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FORESTRY AND GAME MANAGEMENT\*

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Game management within forest areas looks to the production of the largest possible annual crops of game consistent with the preservation and management of the forest itself. It does not look upon game as the sole or even the primary product of the forest, but as one of several uses, including timber crops, watershed and soil protection, and on extensive areas in the West, the grazing of domestic stock. Game crops must find their proper place in this scheme, and it is the business of the forester to see that this resource, as well as others, is brought to its fullest utility.

Game management is just emerging from a prolonged period of domination by sportsmen interested only in the bag limits and hunting seasons on the one hand, and by politicians who batted on the enforcement of these primitive laws on the other; and now bids fair ultimately to take its place with forestry as a source of conservation and intelligently planned sustained yield, based on an understanding of the biological factors involved in maintaining such a balance, and a recognition by the public that only by giving entire control to men trained in these services can adequate results ever be achieved.

While the technical direction and control of game production in States and Nation must rest with game specialists, the immediate problem, where definite areas of forest are concerned, is to secure full coordination in the specific management of these forests, so that neither the production of timber crops, nor the protection of watersheds, nor the grazing of livestock, nor the preservation of elk or deer becomes an exclusive aim, in the pursuit of which all other values and interests are ignored.

The general position of the forester, in all civilized countries--a position accorded by the public as the best solution of their problem of adjustment of conflicting interests--gives him practically full control of all the different uses of a forest area. This solution is based on the belief that the forest crop is in fact the dominant use, giving the highest value per acre to society, and that other uses must therefore be subordinated and correlated to this use.

This solution, however, has not yet been accepted by the American public at large, and the nearest approach to it is in the proposal by the Department of Agriculture that the regulation of game on the national forests be recognized as a Federal responsibility and carried out by the Forest Service.

This theory is also based on a fundamentally important principle, namely, that the administration of any large body of land must be centered in one authority, on an area basis, and not divided between several different authorities on a functional basis. In the former case, the specialists appear as advisers and assistants, while in the latter they have the power to carry out any measure affecting their interest regardless of its effect on the whole administration or on other and perhaps more important interests.

Can foresters be trusted to administer game matters efficiently on forest areas under their charge? This would probably be answered in the negative by most of the game interests at present, in the belief, first, that foresters know too little about game, and second, that they sacrifice game values in an unintelligent manner, in order to secure higher production of commercial trees.

What these game interests do not seem to realize is that the entire profession of forestry is based on the principle of coordinated use of all land resources, including agriculture, and not upon the exclusive pursuit of a hobby such as parks, or game, or a single interest like grazing or lumbering; that because of this fact foresters, after admitting grazing to the national forests were the first Federal agency to control it in the public interest; that foresters were the first to detect and endeavor to control erosion resulting from destruction of vegetative cover on other than agricultural lands, and that following a natural path of development foresters were the first to establish modern scientific principles of game management, both abroad and in the United States.

It is natural and inevitable that as soon as a profession of trained game and fish specialists arose, their contributions to this science should swiftly outrank the empirical knowledge of foresters, whose special training had been in other fields, with the result that many definite and practical suggestions were made, by which game conditions could be greatly improved by modifying forestry practice. The significant point is that foresters, instead of resisting these ideas, have made immediate efforts to incorporate them in plans for forest management.

The important features of sound game management are, increase in the natural food supply for the game, natural or vegetative protection from climate and predators, opportunity to increase up to the limit of the carrying capacity of the range, and finally, the preservation of this natural balance between food, game, and predators. In this tension the entrance of man and his activities as a predator is the most important element, and the entire problem of predator control must be worked out on the basis, not of complete protection from all killing, but on the relative amount of kill which is to be secured for sportsmen as against animal predators.

The most extreme and dangerous form of abnormal management occurs when all forms of predatory activity, including hunting, are prohibited successfully in the interest of the nature-loving public, who wish to see the wild animals in much the same manner but in far more elevating surroundings and conditions than are maintained in zoos. Where this

natural but totally unscientific management is practiced, and the healthy natural forces of depletion are abolished, there first occurs a rapid increase in the herd, whether it be deer on the Kaibab Forest (and in half a hundred other localities), moose on Isle Royale, or antelope on the Coconino National Forest. There follows swiftly an almost total destruction of the food supply, or vegetative base. Starvation then sets in, accompanied by disease and malformations, dwarfing of stature, and general ruin of the species. The carrying capacity is permanently lowered and the public deprived of the sight of even the normal number of animals for decades to come. As foresters we speak not from theory but from experience. Had it been possible in any other way than by such horrible examples to overcome the obstacles of single-minded opposition by nature lovers, State control of game laws by politicians, and jealous guarding of universal rights of citizens to kill to the bag limit, the practice of regulated kills on such areas would have prevented these debacles without invoking the terrific reprisal of outraged nature, when her age-old balances are rudely upset by well-meaning but ignorant idealists.

One thing has, however, been demonstrated. Given proper protection, especially during the breeding season, and an adequate food supply, even such large animals as deer, elk, moose, antelope, and bear will increase at an astounding rate, and may thus be made to furnish both spectacle and sport for our entire nation perpetually, if rightly managed. The same is true in even greater proportion for small game.

The forester's responsibility lies not in the general field of State game laws or regulations, nor in technical research, but rather in the management of forests directly under his control, whether this be National, State, or private. In this domain he can avoid the "deserts" caused by large even-aged stands of conifers, for instance, by resorting, as he would for other sound reasons, to the breaking up of age classes, and the creation of all-aged forests and stands. Coniferous plantations while lacking in food, provide indispensable protective cover and, when of small area and dispersed among hardwood forests, greatly increase the game total of both large and small species. Forest margins and openings and many species of food bearing trees and shrubs can be favored with no loss to commercial production of timber. An adequate number of "coon" trees per square mile might easily be spared in improvement cuttings, but no one need worry about squirrels! These and many other relationships are easily and readily worked out on any forest area over which the forester has control, including the indispensable game sanctuaries of proper size to permit of protection without creating the havoc of overproduction.

The other side of the picture is worth a glance. Game, both for recreation (sight) and sport offers a direct satisfaction to the individual of his need for relaxation, and as such possesses the enormous emotional appeal that a two weeks' vacation offers as contrasted with fifty weeks of grinding office toil. So strong is this sentiment that, were it not for the contest between the sight-seers and the killers, on the one hand, and the fact that practically every game enthusiast is a dogged individualist in his opinion, on the other, the force of the game interests in public affairs would be well nigh

irresistible; and the only hope of the forester would lie (as in fact it does) in his advocacy of natural laws and methods, which constantly support his contentions by demonstrations of their soundness. But even in older countries, such as Germany, foresters have leaned far towards the maximum production of game regardless of damage to the forest, and have as a consequence been forced to resort to expense in protecting reproduction from extermination by browsing, that would be impossible in America for decades to come. At the meeting of the German Society of Foresters in the summer of 1935, a resolution was unanimously and enthusiastically endorsed to the effect that the total population of game in the German forests must be considerably reduced if the public expected these forests to continue to produce a reasonably adequate crop of timber for the use of the nation.

The crux of the situation here will lie in the possible damage by browsing, to the reproduction of trees. Already many examples have occurred of plantations decimated by winter browsing of deer. With proper coordination of forest management, including the provision for abundant supply of preferred foods (deer do not eat evergreens by choice) and the prevention of ruinous over-population by a regulated kill, it will be possible to raise, not the maximum of wood alone, nor yet the greatest number of game animals, but the maximum crops of both trees and game taken as a whole, on areas on which no one interest is allowed to dominate and destroy the rights and welfare of all others, but which are managed for the greatest good of all, in perpetuity.